# Machine Learning for Radiometer Calibration

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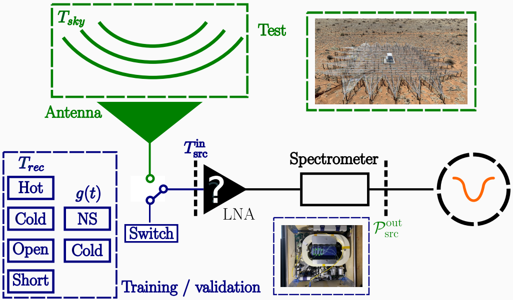
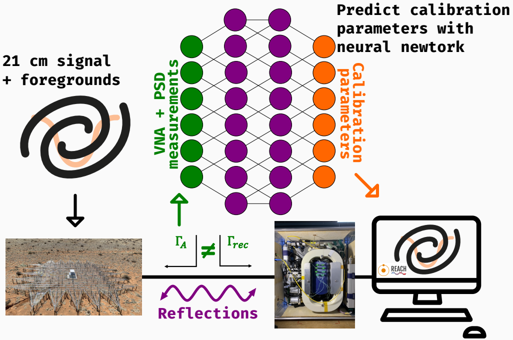
# ML calibration overview



# Testing on internal validation source

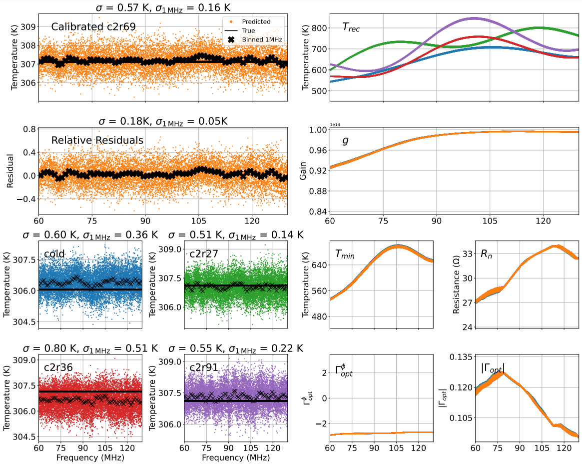
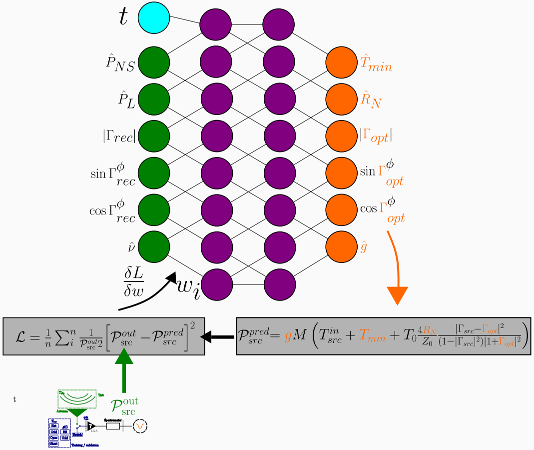
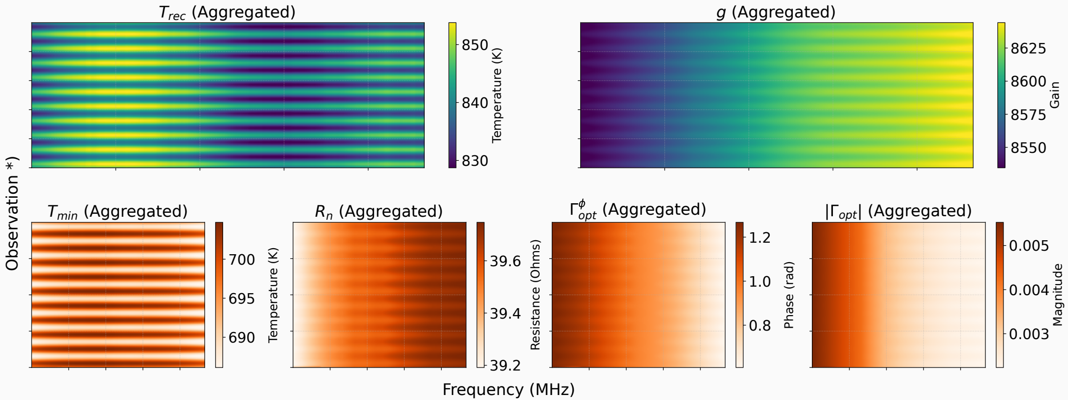



**Figure 1:** Temperature calibration using internal sources on the REACH receiver

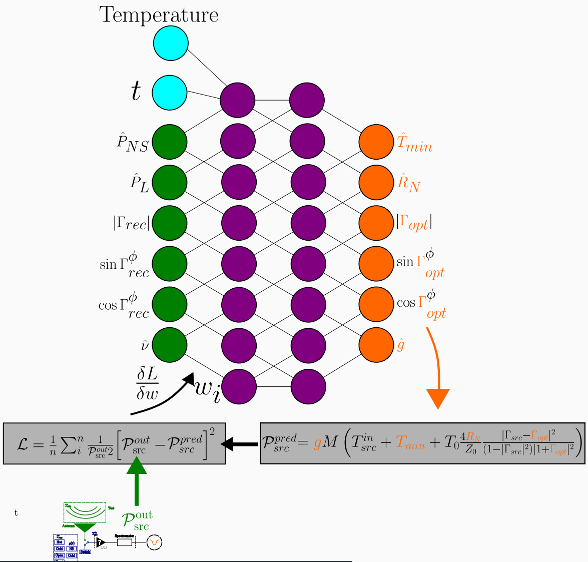
# Neural Network Time Evolution



# Inject system drift




Inject a time varying sinusoid into $T_{\mathrm{min}}$ and predict the noise parameters $\rightarrow$ the network recovers this 'system drift'




We can train on features that cannot be modeled analytically

# Conclusions

**Component Modelling**

Learn the effect of complex internal components such as switches, cables, etc

**Temporal Dynamics**

Learn time dependant system behaviour

**Extended Inputs**

Train on non-standard inputs, such as box temperature